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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
EL CHANTI, HUSSEIN A	
ART UNIT	**PAPER NUMBER**
2157	

DATE MAILED: 11/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/557,736	LIAO, HENG	
	Examiner	Art Unit	
	Hussein A El-chanti	2157	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 August 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This action is responsive to RCE received on August 23, 2004. Claims 1, 6, 11, 18 and 27 were amended. Claims 1-30 are pending examination.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1 and 6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1 and 6 recite the limitation "it" in the claim. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-30 is rejected under 35 U.S.C. 102(e) as being anticipated by Narad et al., U.S. Patent No. 6,701,338(referred to hereafter as Narad).

Narad teaches the invention as claimed including a system for protocol processing in a computer network (see abstract).

As to claim 1, Narad teaches a method for identifying protocol encapsulation in received network data comprising providing language definition including a grammar for receiving incoming network data and processing it in accordance with a formal language processing technique using said language definition and said processing including parsing said network data using said grammar, said network data being organized into data packets (see col. 4 lines 47-67, col. 9 lines 1-35, col. 8 lines 50-65 and col. 36 lines 19-col. 37 lines 22).

As to claim 2, Narad teaches the method of claim 1 wherein said grammar is a grammar graph and including a DFA representing said graph (see col. 103-col. 104).

As to claim 3, Narad teaches the method of claim 1 further including scanning said incoming network data using lexical token scanning to produce plural lexical tokens, said step of parsing including parsing said lexical tokens (see col. 36 lines 19-col. 37 lines 22).

As to claims 4 and 14, Narad teaches the method of claims 3 and 12 respectively wherein said lexical scanning includes providing a set of regular expressions (see col. 36 lines 19-col. 37 lines 22).

As to claim 5, Narad teaches the method of claim 3 further including providing a DFA, said DFA including a representation of said lexical tokens and said grammar, said step of scanning including recognizing lexical tokens contained in said data packets using said DFA, said step of parsing including identifying grammatical structure among said lexical tokens using said DFA to identify protocol encapsulation in said incoming network data (see col. 36 lines 19-col. 37 lines 22 and col. 103-col. 104).

As to claim 6, Narad teaches a method for processing data packets comprising:

providing a language definition including a grammar;

receiving plural data packets, each having a length not necessarily equal to one another; and

for each data packet, processing it according to a formal language processing technique using said language definition including lexically scanning said data packet to produce plural lexical tokens, parsing said lexical tokens using said grammar to produce one or more identified protocols, and processing said data packet based on said identified protocols (see col. 9 lines 1-35, col. 8 lines 50-65 and col. 36 lines 19-col. 37 lines 22).

As to claim 7, Narad teaches the method of claim 6, including compiling said grammar to produce a grammar graph (see col. 36 lines 19-col. 37 lines 22).

As to claim 8, Narad teaches the method of claim 7 wherein said lexical scanning includes providing regular expressions for identifying said lexical tokens (see col. 36 lines 19-col. 37 lines 22).

As to claim 9, Narad teaches the method of claim 8 further including compiling said regular expressions are into DFA (see col. 103-col. 104).

As to claim 10, Narad teaches the method of claim 9 including DFA into said grammar (see col. 103-col. 104).

As to claim 11, Narad teaches a method for processing data packets comprising:

Receiving a description of grammar rules in the form of a grammar packet classification language;

Compiling said grammar packet classification language to produce a grammar graph;

Configuring a classifier with said grammar graph;

Processing said data stream in accordance with a formal language processing technique using said grammar packet classification language including parsing said data stream with said grammatical packet classifier to identify a protocol structure in a received data packet; and

Processing said received data packet in accordance with said protocol structure (see col. 9 lines 1-35, col. 8 lines 50-65 and col. 36 lines 19-col. 37 lines 22 and col. 103-col. 104).

As to claim 12, Narad teaches the method of claim 11 further including:

receiving a description of classification rules in a lexical classification language;

compiling said classification language to produce a (DFA) comprising plural states;

configuring said hardware packet classifier with said DFA; and

scanning said data stream with said hardware packet classifier to produce plural wherein said parsing is a step of parsing said lexical tokens lexical tokens (see col. 9 lines 1-35, col. 8 lines 50-65 and col. 36 lines 19-col. 37 lines 22).

As to claim 13, Narad teaches the method of claim 12 wherein said grammar graph is incorporated into said DFA (see col. 103-col. 104).

As to claim 15, Narad teaches the method of claim 14 wherein said regular expressions include arithmetic and logic operations (see col. 36 lines 45-60).

As to claim 16, Narad teaches the method of claim 15 wherein said regular expressions further include skip operations (see table16-17).

As to claim 17, Narad teaches the method of claim 16 wherein said regular expressions further include data storage operations (see table16-17).

As to claim 18, Narad teaches a network data packet classifier comprising: an input port for receiving network data packets comprising a stream of data; a memory assemblage configured with data representing a deterministic finite automaton (DFA), said DFA defined by a language definition and representing a grammar graph and plural regular expressions; and decompression logic operatively coupled to said memory assemblage and configured to process said stream of data according to a formal language processing technique using said language definition including _a. step to scan said stream of data with said DFA to find a matching one of said regular expressions thereby producing plural lexical tokens, said decompression logic further configured to parse said lexical tokens with said DFA to identify a protocol structure in a received network data packet, wherein processing of said network data packet depends on said protocol structure (see col. 4 lines 47-67, col. 9 lines 1-35, col. 8 lines 50-65 and col. 36 lines 19-col. 37 lines 22).

As to claim 19, Narad teaches the classifier of claim 18 wherein some of said regular expressions include arithmetic instructions and logic instructions, said memory assemblage further configured to contain said instructions, the classifier further including an arithmetic logic unit operatively coupled to said decompression logic and

configured to execute said instructions (see col. 8 lines 65-col. 9 lines 30 and col. 36 lines 19-col. 37 lines 22).

As to claim 20, Narad teaches the classifier of claim 19 further including at least one register operatively coupled to said arithmetic logic unit, said arithmetic logic unit further configured to store data into said register in response to a save instruction (see col. 8 lines 65-col. 9 lines 30 and col. 36 lines 19-col. 37 lines 22).

As to claim 21, Narad teaches the classifier of claim 19 further including skip logic operatively coupled to said logic component and configured to skip over an amount of data in response a skip instruction (see table16-17).

As to claim 22, Narad teaches the classifier of claim 18 wherein said network data packets can vary from one packet to another (see col. 36-col. 37).

As to claim 23, Narad teaches the classifier of claim 18 wherein said DFA is in compressed form (see col. 8 lines 65-col. 9 lines 30 and col. 36 lines 19-col. 37 lines 22).

As to claim 24, Narad teaches the classifier of claim 23 wherein said DFA comprises plural non-default states and plural default states, and said memory assemblage comprises a base memory, a next-state memory, and a default-state memory; said base memory configured to contain address locations of said next-state memory, said next-state memory representing all of said non-default states, said default-state memory representing all of said default states (see col. 8 lines 65-col. 9 lines 30 and col. 36 lines 19-col. 37 lines 22).

As to claim 25, Narad teaches the classifier of claim 24 wherein said memories are random access memories (see col. 42 lines 35-67).

As to claim 26, Narad teaches the classifier of claim 24 wherein said memories are read only memories (see col. 42 lines 35-67).

As to claim 27, Narad teaches a network packet classifier comprising: means for receiving an incoming network packet; and

means for identifying protocol structure in said network packet including means for processing said network packet in accordance with a formal language processing technique using, a language definition, including a step of scanning to match patterns in its constituent data against plural regular expressions to produce lexical tokens and means for parsing through said lexical tokens using a grammar, said regular expressions and said grammar being defined by said language definition (see col. 4 lines 47-67, col. 9 lines 1-35, col. 8 lines 50-65 and col. 36 lines 19-col. 37 lines 22).

As to claim 28, Narad teaches the classifier of claim 27 wherein said means for scanning includes a memory component configured with data to represent a deterministic finite automaton (DFA) (see col. 8 lines 65-col. 9 lines 30 and col. 36 lines 19-col. 37 lines 22).

As to claim 29, Narad teaches the classifier of claim 28 wherein said memory component is further configured to include said grammar (see col. 8 lines 65-col. 9 lines 30 and col. 36 lines 19-col. 37 lines 22).

As to claim 30, Narad teaches the classifier of claim 27 wherein said regular expressions include arithmetic specifiers and said means for classifying includes an

arithmetic logic unit configured to perform operations in accordance with said arithmetic specifiers (see col. 8 lines 65-col. 9 lines 30 and col. 36 lines 19-col. 37 lines 22).

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Packet classification state machine having reduced memory storage requirements by Welfeld, U.S. Patent No. 6,424,934.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hussein A El-chanti whose telephone number is (571)272-3999. The examiner can normally be reached on Mon-Fri 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ario Etienne can be reached on (571)272-4001. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Hussein El-chanti

Nov. 9, 2004

SALEH NAJJAR
PRIMARY EXAMINER